

**ABSTRACT**

A novel method of manufacturing a microchannel plate (“MCP”) is disclosed. The method comprises the steps of ion implantation of a substrate, the subsequent formation of channels patterned on the surface of the substrate and bonding of the subsequent substrate to a handle wafer. The layers are subsequently cleaved and the steps repeated until a MCP structure is achieved. The resulting MCP structure is cost-effective as compared to conventional manufacturing processes and the resulting MCP structure exhibits a funneling effect. The MCP structure may also be used for optical signal amplification for a biochip array.

5